University of Botswana
Department of Statistics
STA 101_LE01

Exercise 1 **Date: 21-09-2020** **Due Date:23-09-2020**

Question 1

1. Identify the **rules of algebra** associated with the number system in each of the following examples:
   (i) $3+6 = 6+3$
   (ii) $10\times 3 = 3\times 10$
   (iii) $(3+7)+2 = 3+(7+2)$
   (iv) $(5\times 3)\times 2 = 5\times(3\times 2)$
   (v) $2\times(4+6) = (2\times 4)+(2\times 6)$
   (vi) $3+(-3) = (-3)+3 = 0$
   (vii) $2\times 2^{-1} = 2\times\frac{1}{2} = 1$
   (viii) $\frac{1}{5}+0 = 0+\frac{1}{5} = \frac{1}{5}$
   (ix) $4^{-1}\times 1 = 1\times 4^{-1} = 4^{-1}$

2. Write the **Cartesian product** of the set A={8, 16, 20} and set B={5, 8, 18, 21}.

3. If the relation R denotes "square is" on the set A={2,3,5} to set B={1, 4, 8, 9, 15, 25}, represent the relation by an **arrow diagram** and write the **ordered pairs** of the relation.

4. Let the relation R "is less than or equal to" on the set A= {11, 22, 35, 36}. Determine which of the **reflexive**, **symmetric** and **transitive properties** are satisfied by the relation.